

REMARKS

Applicants respectfully request reconsideration of the present application in view of the foregoing amendments and in view of the reasons that follow.

Claims 1 and 10 are currently being amended.

This amendment adds, changes and/or deletes claims in this application. A detailed listing of all claims that are, or were, in the application, irrespective of whether the claim(s) remain under examination in the application, is presented, with an appropriate defined status identifier.

After amending the claims as set forth above, claims 1-4, 6-13, 15-20, 22, and 23 are now pending in this application.

Status of the Office Action

The Office Action Summary notes that the action is final. However, the action is the first action after an RCE, a check of the PAIR database indicates the action is noted as non-final, and the Examiner does not specify the finality of the action with the text. Therefore, for purposes of this Amendment and Reply, Applicants assume the action should be non-final. Applicants respectfully request the Examiner confirm this assumption.

Rejections Under 35 U.S.C. § 103

Claims 1-3, 6-8, 10, 13, 15 and 16-20

In Section 2 of the Office Action, Claims 1-3, 6-8, 10, 13, 15 and 16-20 are rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,159,845 (Yew et al.), in view of U.S. Patent No. 6,399,496 B1 (Edelstein et al.) and U.S. Patent No. 6,749,699 B2 (Bogel et al.). Applicants respectfully traverse the rejection.

In the Office Action on page 5, the Examiner states with respect to Claim 17:

9. Regarding Claims 17, Yew et al. disclose a method of forming a via in an integrated circuit, the method comprising:

depositing a first conductive layer (102) (Figure 1B),

depositing an etch stop layer (106) (Col. 3, line 8) over the first conductive layer,

depositing an insulating layer (104) “over” the etch stop layer, whereupon, an etch is applied and an aperture formed in the insulating layer and etch stop layer,

providing a barrier material (128) extending along a bottom and sides of the aperture, filling a via aperture with a copper alloy and

providing a second conductive layer (124a) formed over the via, electrically connection first and second conductive layers.

However, Yew et al. does not disclose, suggest, or teach depositing an insulating layer over an etch stop layer. The Figures and the text of Yew et al. clearly show that insulating layer 104 is not over the etch stop layer 106. The claim limitation from Claim 17 requiring the insulating layer be over the etch stop layer has been added to independent Claims 1 and 10.

More specifically, Claim 1 now requires:

depositing an etch stop layer over a first conductive layer;

depositing an insulating layer after the etch stop layer is deposited over the etch stop layer.

Claim 10 now requires:

providing an etch stop layer over the first conductive layer;

providing an insulating layer over the etch stop layer after the etch stop layer has been provided over the first conductive layer.

In addition to Yew et al., neither Edelstein et al. nor Bogel et al. disclose, suggest, or teach “depositing an insulating layer over the etch stop layer” (independent Claims 1 and 17) or

“providing an insulating layer over the etch stop layer after the etch stop layer has been provided over the first conductive layer” (independent Claim 10). Thus, the combination of Yew et al., Edelstein et al., and Bogel et al. do not disclose or suggest all the limitations of Claims 1-3, 6-8, 10, 13, 15, and 16-20. Accordingly, the rejection cannot be properly maintained. Applicants respectfully request withdrawal of the rejection.

Claims 4 and 9

In Section 12 of the Office Action, Claim 4 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Yew et al., in view of Edelstein et al. and Bogel et al., and further in view of U.S. Patent No. 6,440,849 B1 (Merchant et al.). In Section 14 of the Office Action, Claim 9 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Yew et al., in view of Edelstein et al. and Bogel et al., and further in view of U.S. Patent No. 6,380,083 B1 (Gross). Applicants respectfully traverse the rejection. Claims 4 and 9 depend from Claim 1 and are patentable for at least the same reasons as Claim 1. Applicants request withdrawal of the rejections.

Claims 11 and 12

In Section 16 of the Office Action, Claims 11 and 12 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Yew et al., in view of Edelstein et al. and Bogel et al., and further in view of U.S. Patent No. 6,090,710 (Andricacos et al.). Applicants respectfully traverse the rejection. Claims 11 and 12 depend from Claim 10 and are patentable for at least the same reasons as Claim 10. Applicants request withdrawal of the rejection.

Claims 21 and 22

In Section 19 of the Office Action, Claims 21 and 22 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Yew et al., in view of Edelstein et al. and Bogel et al., and further in view of Merchant et al. Applicants respectfully traverse the rejection. Claim 21 was cancelled in a previous Amendment. Claim 22 depends from Claim 17 and 18 and is patentable for at least the same reasons. Applicants request withdrawal of the rejection.

Claim 23

In Section 21 of the Office Action, Claim 23 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Yew et al., in view of Edelstein et al. and Bogel et al., and further in view of Gross. Applicants respectfully traverse the rejection. Claim 23 depend from Claim 17 and 18 and is patentable for at least the same reasons. Applicants request withdrawal of the rejection.

Applicants believe that the present application is now in condition for allowance. Favorable reconsideration of the application as amended is respectfully requested.

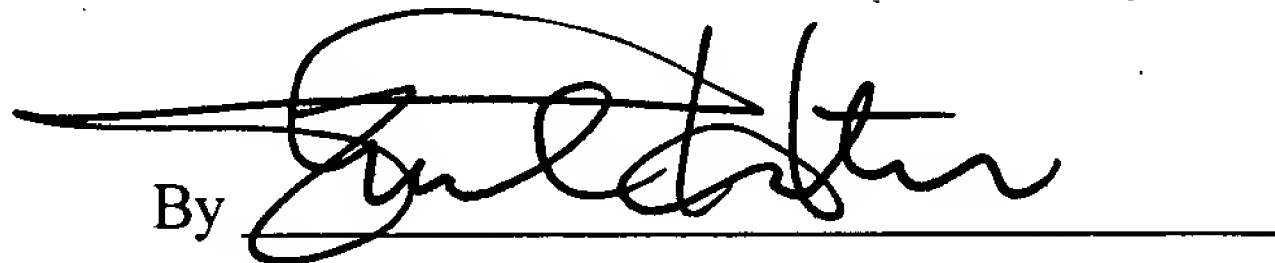
The Examiner is invited to contact the undersigned by telephone if it is felt that a telephone interview would advance the prosecution of the present application.

The Commissioner is hereby authorized to charge any additional fees which may be required regarding this application under 37 C.F.R. §§ 1.16-1.17, or credit any overpayment, to Deposit Account No. 50-2350. Should no proper payment be enclosed herewith, as by a check being in the wrong amount, unsigned, post-dated, otherwise improper or informal or even entirely missing, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 50-2350. If any extensions of time are needed for timely acceptance of papers submitted herewith, Applicants hereby petition for such extension under 37 C.F.R. §1.136 and authorizes payment of any such extensions fees to Deposit Account No. 50-2350.

Respectfully submitted,

Date June 29, 2005

By



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